CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory
An ISO 9001:2008 Certified Company
NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Sp_Wa/2017-18

12.01.2018

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements to Roads and Asphalting at Kuvempu School road and other roads in Mallasandra Ward No.13, in Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/144/2017-18 Dated: 21.12.2017
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	12.01.2018

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2017	2015	2018	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1263	
4	Weight of saturated surface dry aggregate in air	W_3 g	2021	2022	2024	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	782	784	761	
6	Weight of oven dried aggregate	W_4 g	2012	2013	2012	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.573	2.568	2.644	2.595
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.603	2.597	2.686	2.629
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.45%	0.45%	0.60%	0.50%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

Note:

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⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

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Civil-tech Consultants & Engineers

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-560 079

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

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Job No: CTCE/BBMP/KRIDL/W.No.13/BC/Bitumen/2017-18 12.01.2018

TEST REPORT ON BITUMEN CONTENT OF BITUMINOUS CONCRETE MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements to Roads and Asphalting at Kuvempu School road and other roads in Mallasandra Ward No.13, in Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/144/2017-18 Dated: 21.12.2017
* Sample ID	:	Road at Kuvempu School road, Mallasandra in ward no.13,
Technical Reference	:	IRC:SP:11-1984
Date of Testing	:	12.01.2018

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	473	472
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	27	28.00
7. Bitumen content in %	5.40	5.60
8. Average	**5.50**	

*Information is furnished by the Customer/Representative.

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Basaveshwaranagar, Bangalore-560 079.

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Tele Fax : 23223227, Website : www.civiltechconsultants.com
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Job No: CTCE/BBMP/KRIDL/W.No.13/BC/Bitumen/2017-18

12.01.2018

TEST REPORT ON BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements to Roads and Asphalting at Kuvempu School road and other roads in Mallasandra Ward No.13, in Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/144/2017-18 Dated: 21.12.2017
* Sample ID	:	Road at Kuvempu School road, Mallasandra in ward no.13,
Technical Reference	:	IS 2386 and IRC:SP:11-1984
Date of Testing	:	12.01.2018

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	41.6	8.79	8.79	91.21	79-100
9.5	32.51	6.87	15.67	84.33	70-88
4.75	76.28	16.13	31.79	68.21	53-71
2.36	62.58	13.23	45.03	54.97	42-58
1.18	50.41	10.66	55.68	44.32	34-48
0.6	55.3	11.69	67.37	32.63	26-38
0.3	54.2	11.46	78.83	21.17	18-28
0.15	41.2	8.71	87.54	12.46	12-20
0.075	32.5	6.87	94.41	5.59	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	40.5	8.58	8.58	91.42	79-100
9.5	42.5	9.00	17.58	82.42	70-88
4.75	60.8	12.88	30.47	69.53	53-71
2.36	70.2	14.87	45.34	54.66	42-58
1.18	60.2	12.75	58.09	41.91	34-48
0.6	55.1	11.67	69.77	30.23	26-38
0.3	32.5	6.89	76.65	23.35	18-28
0.15	30.17	6.39	83.04	16.96	12-20
0.075	42.5	9.00	92.05	7.95	4-10

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Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Agg/2017-18 12.01.2018

TEST REPORT ON GRADATION OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements to Roads and Asphalting at Kuvempu School road and other roads in Mallasandra Ward No.13, in Shettyhalli Sub Division, BBMP,
* Reference	:	BBMP/EE/DD/WO/144/2017-18 Dated: 21.12.2017
* Sample ID	:	Bituminous Concrete
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Hot mix plant, Bangalore
Date of Testing	:	12.01.2018

Total Weight of Sample: **5125** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per `MORTH 500-18
13.2	755	14.73	14.73	85.27	79 - 100	
9.5	545	10.63	25.37	74.63	70 - 88	
4.75	630	12.29	37.66	62.34	53 - 71	
2.36	520	10.15	47.80	52.20	42 - 58	
1.18	515	10.05	57.85	42.15	34 - 48	
0.600	535	10.44	68.29	31.71	26 - 38	
0.300	585	11.41	79.71	20.29	18 - 28	
0.150	340	6.63	86.34	13.66	12 - 20	
0.075	310	6.05	92.39	7.61	4 - 10	

Total Weight of Sample: **5150** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH 500-18
13.2	645	12.52	12.52	87.48	79 - 100	
9.5	550	10.68	23.20	76.80	70 - 88	
4.75	680	13.20	36.41	63.59	53 - 71	
2.36	545	10.58	46.99	53.01	42 - 58	
1.18	635	12.33	59.32	40.68	34 - 48	
0.600	480	9.32	68.64	31.36	26 - 38	
0.300	540	10.49	79.13	20.87	18 - 28	
0.150	385	7.48	86.60	13.40	12 - 20	
0.075	510	9.90	96.50	3.50	4 - 10	

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